AMENDMENT UNDER 37 C.F.R. 1.116

EXPEDITED PROCEDURE

EXAMINING GROUP 2665

PATENT

Application # 09/851,284

Attorney Docket # 1999-0647 (1014-131)

AMENDMENTS

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of managing data flow in a router in a network, comprising:

determining that a data packet from a plurality of data packets is eligible for overflow routing based upon ~~an eligibility marker stored in the router, the eligibility marker not directly related to congestion~~ a network policy and at least one of a source port ID, a source IP address, and a destination address, wherein not all data packets from the plurality of data packets are eligible for overflow routing; and

switching, upon detection of congestion on one of ~~the~~ a plurality of output ports of the router, output of the eligible data packet from a primary output path of the one of the output ports corresponding to a destination address of the eligible data packet, to an overflow path for the destination address.

2. (Original) The method according to claim 1, further comprising:

detecting when the congestion has abated; and

switching the output of data from the overflow path back to the primary path for the destination address.

3. (Original) The method according to claim 1, further comprising:

storing a forwarding table in the router, the forwarding table having entries respectively corresponding to destination addresses in the network and identifying at least two output paths from the router for at least some of the destination addresses to enable overflow routing, one of

the at least two output paths being identified as a primary path and other output paths being identified as overflow paths.

4. (Original) The method according to claim 3, further comprising:

determining, upon detection of congestion on the one of the output ports, which one of the at least two overflow paths from which to output the data based upon an amount of data currently assigned to be output from each of the at least two overflow paths.

5. (Original) The method according to claim 4, wherein the determining step comprises:

determining the amount of data currently assigned to be output from each of the at least two output paths;

determining which one of the at least two overflow paths has the least amount of data to be output; and

assigning the data to be output from the at least one of the overflow paths having the least amount of data to be output.

6. (Currently Amended) A method of managing data flow in a router in a network, wherein the router includes a forwarding table having entries respectively corresponding to destination addresses in the network and identifying at least two output paths from the router for at least some of the destination addresses to enable overflow routing, one of the at least two output paths being identified as a primary path and other output paths being identified as an overflow paths, the method comprising:

monitoring receipt of congestion signals from at least two transmit buffers respectively associated with at least two output ports of the router;

determining that a destination address from the destination addresses in the network is eligible for overflow routing based upon ~~an eligibility marker stored in the router, the eligibility marker not directly related to congestion~~ a network policy and at least one of a source port ID, a source IP address, and a destination address, wherein not all of the destination addresses in the network are eligible for overflow routing; and

switching, for all of the destination addresses in the forwarding table affected by the detection of congestion and eligible for overflow routing, from the primary path to one of the overflow paths for transmitting the data.

7. (Original) The method according to claim 6, further comprising:

determining when the congestion has abated based upon status of the congestion signals;

switching, for all of the destination addresses in the forwarding table switched to overflow routing, from the overflow path back to the primary path when the congestion has abated.

8. (Currently Amended) A method of managing data flow in a router in a network, comprising:

storing a forwarding table in the router, the forwarding table having entries respectively corresponding to destination addresses in the network and identifying at least two output paths from the router for at least some of the destination address to enable overflow routing, one of the at least two output paths being identified as a primary path and any other output path being identified as an overflow path;

monitoring receipt of congestion signals from at least two transmit buffers respectively associated with at least two output ports of the router;

determining that a destination address from the destination addresses in the network is eligible for overflow routing based upon ~~an eligibility marker stored in the router, the eligibility marker not directly related to congestion~~ a network policy and at least one of a source port ID, a source IP address, and a destination address, wherein not all of the destination addresses in the network are eligible for overflow routing; and

switching, for all of the destination addresses in the forwarding table affected by the detection of congestion and eligible for overflow routing, from the primary path to the overflow path for transmitting the data.

9. (Original) The method according to claim 8, further comprising:

determining when the congestion has abated based upon status of the congestion signals; and

switching, for all of the destination addresses in the forwarding table switched to overflow routing, from the overflow path back to the primary path when the congestion has abated.

10. (Original) A method of managing data flow in a router of a network, comprising:

running a routing protocol in the router;

determining at least two output paths for each of a plurality of destination addresses based upon the routing protocol;

determining which of the destination addresses are eligible for overflow routing based upon ~~an eligibility marker stored in the router, the eligibility marker not directly related to~~

~~congestion~~ a network policy and at least one of a source port ID, a source IP address, and a destination address, wherein not all destination addresses are eligible for overflow routing; and

storing, for each of the destination addresses eligible for overflow routing, the at least two output paths.

11. (Original) The method according to claim 10, wherein the storing step comprises:

storing, for each of the destination addresses other than the destination addresses eligible for overflow routing, one output path.

12. (Original) The method according to claim 10, further comprising:

monitoring congestion status on each output port of the router; and

switching, upon detection of congestion on one of the output ports, output of data from a primary output path of the one of the output ports corresponding to a destination address of the data to be output to an overflow path for the destination address.

13. (Original) The method according to claim 12, further comprising:

detecting when the congestion has abated; and

switching the output of data from the overflow path back to the primary path for the destination address.

14. (Currently Amended) A method of managing data flow in a router in a network, comprising:

monitoring congestion status on each output port of the router, wherein the congestion status is one of a plurality of levels of congestion;

determining that predetermined data packets are eligible for overflow routing based upon ~~an eligibility marker stored in the router, the eligibility marker not directly related to congestion~~ a network policy and at least one of a source port ID, a source IP address, and a destination address, wherein not all data packets are eligible for overflow routing;

determining an amount of predetermined data packets to be overflowed based upon the level of congestion; and

switching, upon detection of the one of the plurality of levels of congestion on the at least one output port, the amount of predetermined data packets to be overflowed from a primary output path of the at least one output port corresponding to a destination address of the data to be output, to an overflow path for the destination address.

15. (Original) The method according to claim 14, further comprising:

detecting when the level of congestion has abated; and

switching the output of the at least one output port from the overflow path back to the primary path for the destination address.

16. (Original) The method according to claim 14, further comprising:

storing a forwarding table in the router, the forwarding table having entries respectively corresponding to destination addresses in the network and identifying at least two output paths from the router for at least some of the destination addresses to enable overflow routing; and

storing, for each of the at least some of the destination addresses, a plurality of overflow data amounts respectively corresponding to the plurality of levels of congestion.

17. (Previously Presented) The method of claim 11, further comprising:

collecting link state advertisements from other routers in the network, wherein the link state advertisements are adapted for use in the determining at least two outlet paths step; and

constructing a graph in the router using the link state advertisements.

18. (Previously Presented) The method of claim 10, further comprising:

prioritizing the at least two output paths based on possible IP packet priorities.

19. (Previously Presented) The method of claim 10, further comprising:

encapsulating an IP packet according to an MPLS protocol, the IP packet adapted to be routed on one of the at least two output paths.

20. (Previously Presented) The method of claim 10, wherein said determining the at least two output paths step uses a K-diverse shortest path algorithm.